

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-264963

(43)Date of publication of application : 28.09.1999

(51)Int.Cl.

G02F 1/13

G02B 7/28

G03B 21/53

G03B 21/00

(21)Application number : 11-013143

(71)Applicant : SEIKO EPSON CORP

(22)Date of filing : 21.01.1999

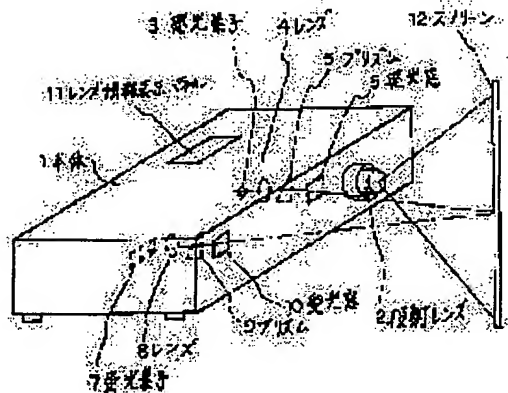
(72)Inventor : HASHIZUME TOSHIKI  
FUJIMORI MOTOYUKI  
MIYASHITA SEI

## (54) PROJECTOR

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a liquid crystal projector which is cable of automatic focusing even when an interchangeable lens is used.

**SOLUTION:** A liquid crystal projector is provided with a distance finding mechanism which measures the distance to a screen 12. The distance measuring mechanism consists of a light emission system equipped with a light emitting element 3, a lens 4, a prism 5, and a light emission window 6 and a light reception system equipped with a light emitting element 3, a light receiving element 7, a lens 8, a prism 9, and a light reception window 10. The prisms 5 and 9 are composed of variable-vertical-angle prisms and the optical axes of the light emission system and light reception system can be adjusted by varying their vertical angles. Thus, even if a screen shifts vertically from a main body, an interchangeable lens with a different focal length is used to enable automatic focusing. Furthermore, this is applicable to a screen size measuring mechanism which measures a screen size from the change point of a light reception level and the variation quantity of an optical axis.



## LEGAL STATUS

[Date of request for examination] 22.01.1999

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 3199048

[Date of registration] 15.06.2001

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]